Course Unit Descriptor

Study Programme: Computer Science

Course Unit Title: Linear Algebra and Analytic Geometry

Course Unit Code: CS251

Name of Lecturer(s): Dragan Mašulović, Maja Pech

Type and Level of Studies: Bachelor Academic Degree

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Winter

Language of instruction: Serbian (primary), English (secondary)

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 5

Prerequisites: None

Course Aims:

In this course students shall acquire deeper knowledge of parts of linear algebra that are vital to computer science. Students will be able to analyze systems of linear equations, to solve geometric problems in 2D and 3D using techniques of analytic geometry and will understand fundamental concepts of vector spaces.

Learning Outcomes:

At the end of the course a successful student will be able to solve systems of linear equations, compute determinants, perform standard calculations in vector calculus, solve concrete geometric problems in 2D and 3D using strategies of analytic geometry, identify bases of vector spaces, compute the dimension of a vector space, understand and compute with linear and affine maps and compute matrix representation of linear and affine maps.

Syllabus:

- Systems of linear equations
- Determinants
- Vector calculus
- Elements of analytic geometry in 2D and 3D
- Vector spaces over a field
- Basis, dimension, finitely dimensional vector spaces over a field
- Linear maps, matrices

Affine maps, matrix representation

Required Reading:

B. Solomon: "Linear Algebra - Geometry and Transformation", CRC Press, Chapman and Hall, 2015

Y. Lin: "Geometric Linear Algebra", World Scientific, 2005

Weekly Contact Hours: 4	**Lectures:** 3	**Practical work:** 1

Teaching Methods:

Blackboard lectures, Blackboard exercises

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	

Practical work		oral exam	30
Preliminary exam(s)	30+40		
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			